



August 6, 2024

City Council of the City of Boardman  
200 City Center Circle  
P.O. Box 229  
Boardman, OR 97818

RE: Appeal APP24-000002, CUP24-000001 Transportation Impacts

Dear Mayor Keefer and Council Members:

Greenlight Engineering has been asked by Hattenhauer Distributing Co. to evaluate the proposed conditional use transportation improvement to install a High-Intensity Activated CrossWalk ("HAWK") signal and a median at N. Main Street/Front Street in Boardman, Oregon (collectively, the "Project"). I have reviewed the March 2024 Technical Memorandum prepared by Kittelson & Associates (hereafter referred to as the "Technical Memorandum"), the April 2009 Boardman Main Street Interchange Area Management Plan ("IAMP"), the Planning Commission's decision, and the City Council Findings of Fact on Appeal.

#### **Executive Summary**

- The application and Planning Commission decision fail to address the IAMP adopted triggers for modifications to the N. Main Street/Front Street intersection. It is clear that none of the triggers for converting the intersection to right-in/right-out operations are met.
- The application lacks evidence of existing operational issues at the N. Main Street/Boardman Avenue NE intersection and provides no engineering analysis of a HAWK signal or evidence that a HAWK signal will resolve the operational issues.

#### **IAMP Triggers for Making Improvements at N. Main Street/Front Street Not Met**

The IAMP provides triggers for making planned improvements in the area and access changes to N. Main Street/Front Street, the IAMP notes that "It is important to establish thresholds for limiting the North and South Front Street access at Main Street so that decisions can be made through the land use review process, and as various traffic issues arise or the community reports significant conflicts."

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Moreover, the IAMP further states:

“Below is a description of when the improvements would be expected to be needed...

Main Street & Front Avenue (sic) (North and South)

The traffic volumes at the intersections of Main Street & Front Avenue North and Main Street & Front Avenue South should be monitored as development occurs to determine if certain turning movements should be prohibited...

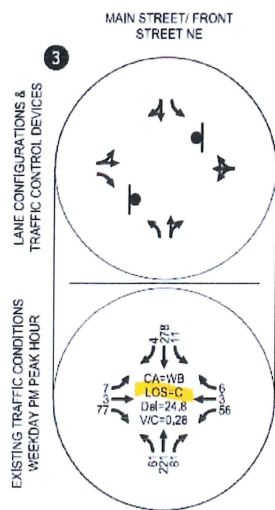
Triggers for access changes at Front Street North and Front Street South include:

- Side street level of service drops below LOS E (15-20 years from now)
- Traffic signal installed at the I-84 westbound ramp (10-15 years from now)
- Increase in crashes
- Bridge improvement project constructed (15-20 years from now)
- Recurring public complaints about conflicts and safety at these locations”

In order to appropriately evaluate whether the N. Main Street/Front Street intersection should be converted to right-in/right-out only as part of this conditional use application, the proposed access changes should be evaluated against the adopted IAMP. These triggers were adopted with substantial community involvement. Each of the five triggers are evaluated below.

**1. Side Street Level of Service**

At the May 15, 2024 Planning Commission meeting, City staff indicated that the N. Main Street/Front Street intersection currently operates at LOS D and the Planning Commission states that “Today it is D which, under the MS IAMP, does require action on the part of the city.” LOS D exceeds the City of Boardman's level of service standard of LOS C. The City concludes that they are compelled to take action based on this LOS. However, Figure 1 (see below) of the Technical Memorandum clearly illustrates that this intersection currently operates at LOS C. There is no evidence that this intersection currently operates at LOS D or otherwise fails to meet City of Boardman mobility standards. In fact, the Technical Memorandum states “As shown, the study intersection operations satisfy...City of Boardman mobility targets/standards.” There is no evidence that the IAMP adopted trigger of LOS E is met.



Excerpt of Figure 1 from Technical Memorandum

## 2. I-84 Signal at Westbound Ramp

No traffic signal is installed or currently proposed at the I-84 westbound ramp/N. Main Street intersection. Therefore, another IAMP trigger point has not occurred to justify a median.

## 3. Increase in Crashes

Table 3.4 of the IAMP reports two crashes at the N. Main Street/Front Street intersection from 2000-2004. The Technical Memorandum reports that there was one crash at the N. Main Street/Front Street intersection from 2016-2020. Appendix A of this report illustrates that there were only two reported crashes at the intersection from 2013-2022. These numbers are consistently low and do not constitute evidence that there is an increase in crashes at the intersection.

## 4. Bridge Improvement Project

There is no bridge improvement project that has been constructed or is currently planned.

## 5. Recurring Public Complaints

There is no evidence that there are "Recurring public complaints about conflicts and safety at these location." Given that the intersection continues to operate adequately at LOS C, significantly better than the trigger of LOS E and there are very few reported crashes at this intersection, this is unsurprising.

None of the triggers that were adopted and agreed upon as part of the IAMP to restrict turning movements at the intersection are met. Taking this analysis together with the significant public

process in developing the IAMP, it does not appear that it is warranted to restrict access at this time at the N. Main Street/Front Street intersection.

**No Engineering Study for HAWK Signal or Traffic Signal**

The Manual on Uniform Traffic Control Devices ("MUTCD") is the national standard for traffic control devices. The 2009 MUTCD is adopted in Oregon under OAR 734-020-0005. The City of Boardman is required to comply with the MUTCD.

The 2009 MUTCD addresses the analysis of potential pedestrian hybrid beacons, of which HAWK signals are a possible tool:

"If a traffic control signal is not justified under the signal warrants of Chapter 4C and if gaps in traffic are not adequate to permit pedestrians to cross, or if the speed for vehicles approaching on the major street is too high to permit pedestrians to cross, or if pedestrian delay is excessive, the need for a pedestrian hybrid beacon should be considered on the basis of an engineering study that considers major-street volumes, speeds, widths, and gaps in conjunction with pedestrian volumes, walking speeds, and delay...

For a major street where the posted or statutory speed limit or the 85th-percentile speed is 35 mph or less, the need for a pedestrian hybrid beacon should be considered if the engineering study finds that the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding total of all pedestrians crossing the major street for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4F-1 for the length of the crosswalk."

The Technical Memorandum fails to address the need for a HAWK signal at the N. Main Street/Boardman Avenue NE intersection. It does not appear there is an engineering study that supports the City's decision to install a HAWK signal.

It does not appear that the criteria of Figure 4F-1 of the MUTCD is met based on the evidence submitted as part of the Technical Memorandum as illustrated below. The red dot illustrates the intersection's pedestrian crossing and vehicular traffic volumes per the Technical Memorandum along with the MUTCD guidelines. The north leg of the N. Main Street crosswalk is approximately 50 feet wide.

The Technical Memorandum fails to provide an engineering study that supports the installation of a HAWK at this intersection, which may present a potential legal liability for the City as the installation may not be based on standard MUTCD procedures. While Hattenhauer Distributing Co. may not oppose the installation of the HAWK signal, the City should still make an informed decision consistent with best practices prior to its installation.

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways

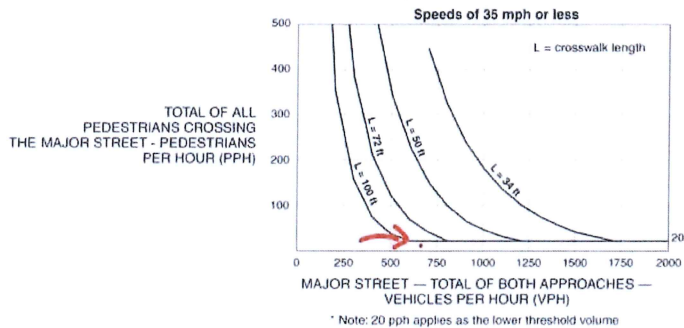


Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways

The City previously proposed a full traffic (not a HAWK signal) based on the Technical Memorandum. However, the Technical Memorandum fails to provide evidence of the traffic volumes that were used in the traffic signal warrant analysis to establish that a traffic signal is warranted. The traffic signal warrant analysis is also based upon a future 2042 year.

There is no evidence that suggests that a full traffic signal or a HAWK signal is warranted at this intersection under existing conditions.

**Technical Memorandum Fails to Provide Evidence or Analysis of Queuing**

It appears that the primary purpose of modifying the N. Main Street/Boardman Avenue NE intersection is to mitigate queues that are generated from pedestrians crossing in the crosswalk with the rectangular rapid flashing beacon ("RRFB"). The Technical Memorandum refers to:

"periods of occasional (sic) vehicle queue spillback generated by a pedestrian crossing beacon at the Boardman Avenue intersection...While students typically crossed in groups, there were instances where repeated back-to-back activations of the RRFB led to the formation of northbound vehicle queues on N Main Street. In some instances, particularly when there were multiple trucks involved, these vehicle queues were observed backing up to and beyond the I-84 WB Ramp Terminal intersection...Other peak activation periods of the RRFB occurred in the 6:45-7:45 AM time period and 2:45-3:34 PM time period, however the number of pedestrians were observed to be measurably lower, more spread out, and less likely to generate significant vehicle queues along N Main Street."

The Technical Memorandum provides a traffic count that illustrates low pedestrian crossing volumes of N. Main Street at Boardman Avenue NE that would not likely create the reported queuing issue. It does not appear that traffic counts were collected and they certainly were not provided for these reported peak activation periods.

The Technical Memorandum fails to quantify the existing queuing or provide traffic analysis that illustrates the reported queuing issues. There is no analysis of the RRFB operations for queuing. It is unclear how frequently these issues exist.

The Technical Memorandum suggests a traffic signal be installed at the intersection. The existing RRFB wasn't analyzed for queuing and the proposed HAWK signal wasn't analyzed for queuing. In fact, there is no evidence of any analysis for a HAWK signal at all. There is no evidence that operations at the intersection will improve with a HAWK signal.

It is unusual to make conclusions about traffic operations without first analyzing the existing conditions and the impacts of proposed solutions.

### **Evaluation of Planning Commission Decision**

The Planning Commission decision states that "Installation of the center median is also justified to convert NW and NE Front Street to right-in/right-out and for traffic queueing/staging at the signalized intersection." It is not clear how the Planning Commission determined that the installation of the median was justified given that the Technical Memorandum does not provide evidence that the center median is needed to address traffic queuing/staging at the signalized intersection of N. Main Street/Boardman Avenue NE.

The Planning Commission decision further states:

"It should be noted that the MS IAMP does say the following about access to Main Street in the vicinity of the Interchange: 'A key element of the IAMP is to the long-range preservation of operational efficiency and safety of the interchange if the management of access to Main Street. Because access points introduce a number of potential vehicular conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic and reduce the efficiency of the transportation system. However, reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts.' The proposed center median and limiting left hand turns on North Main Street between Front Street and Boardman Avenue affectively (sic) achieves the intent of this statement without closing those accesses."

As noted above, the IAMP provides certain triggers that should be met before access restrictions are implemented. None of those triggers are referenced in the Planning Commission's decision and none of those triggers are met.

There is no evidence that the intersection of N. Main Street/Front Street is "frequently the cause[s] of slowing or stopping vehicles...significantly degrade(s) the flow of traffic and reduce(s) the efficiency of the transportation system" nor that any of the IAMP adopted triggers are met.

The Planning Commission's decision further states:

"The city is maintaining the conversion of the Front Street intersection to a right-in/right-out configuration for several reasons outlined here:

1. The City's Level of Service, or LOS, standard is C which is higher than ODOTs and allows for less congestion.
2. Access points introduce a number of potential conflicts on a roadway and are frequently the causes of slowing or stopping vehicles, they can significantly degrade the flow of traffic, and reduce the efficiency of the transportation types. Reducing the overall number of access points and providing greater separation between them can minimize the impacts of these conflicts. Reducing Front Street to a right-in-right-out configuration reduces a significant vehicular conflict adjacent to the west bound off-ramp.
3. At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city. It should be noted that the LOS for South Front Street is also at LOS of D. Without action both of those intersections are identified to achieve a LOS of F by 2042.
4. The MS IAMP does identify that the City is to work towards two items, the first being development of the local street network both east and west of Main Street and second to limit access at Main Street at both north and south Front Street. The first step of this is to limit those intersections to right turn only."

Notably, the Planning Commission's decision again fails to reference the adopted IAMP triggers for modifications to the N. Main Street/Front Street intersection. However, problems associated with each of the above Planning Commission's determinations for converting to right-in/right-out operation are addressed below.

### **1. LOS Standard**

The City's LOS standard is C and while the City has concluded that the intersection operates at LOS D, the Technical Memorandum is clear that the intersections operate at LOS C under existing conditions. Nonetheless, the trigger for conversion per the IAMP is LOS E and that trigger is not met.

### **2. Access Point Causes Conflicts**

The Technical Memorandum provides no evidence that the operations at the Main Street/Front Street cause slowing or stopping of vehicles, significantly degrades the flow of traffic or reduces the efficiency of the transportation types. Regardless, none of these situations are adopted as a trigger as part of the adopted IAMP.

### **3. LOS of Intersection**

The Planning Commission Decision notes that "At the time the MS IAMP was adopted the LOS for Main Street and North Front Street was C. Today it is D which, under the MS IAMP, does require action on the part of the city..Without action both of those intersections are identified to achieve a LOS of F by 2042."

However, the intersection continues to operate at LOS C per the Technical Memorandum. Per the IAMP, no action is triggered until the intersection operates at LOS E. There is no action required per the IAMP.

#### **4. City Should Work Towards Action**

The Planning Commission Decision states that the City should be working to “limit those intersections to right turn only.” However, none of the adopted triggers of the IAMP are met.

The Planning Commission Decision states:

“Staff have determined that the HAWK signal is consistent with the MS IAMP as it does conform to the Access Management Plan by:

- Continuing to restrict access to the interchange and interchange ramps and is, in fact, working to eliminate impacts to the interchange ramps from traffic that currently back up when continual use of the RRFB causes delays of northbound travelers on Main Street.
- Improve safety factors not only within the interchange but also along Main Street and at this intersection in particular.
- Eliminating or reducing turning conflicts along the Main Street corridor at the Front Street intersection.
- Assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization.”

Three of the Planning Commission's determinations that a HAWK signal is consistent with the IAMP are addressed below.

##### **1. Restricting Access**

It is unclear how the HAWK signal would “restrict access” although the Technical Memorandum and Planning Commission decision reference queuing impacts. As noted earlier, the Technical Memorandum fails to provide substantial evidence of queuing issues or any analysis that establishes that a queuing issues exists or how a HAWK signal would mitigate this issue. The Technical Memorandum fails to provide any analysis of a HAWK signal. The Technical Memorandum fails to provide evidence of pedestrian counts that may result in queuing issues.

##### **2. Improves Safety**

There is no evidence that the HAWK signal would improve safety at the intersection as the HAWK was not even a consideration of the Technical Memorandum. There is also not substantial evidence that there is a safety issue at the interchange caused by the current operations at N. Main Street/Boardman Avenue NE intersection.

##### **3. Reducing Conflicts/Maintaining Some Access at the Front Street Intersection**

There is not substantial evidence that the HAWK signal at N. Main Street/Boardman Avenue NE eliminates or reduces turning conflicts along the Main Street corridor at the Front Street intersection. There is no traffic analysis of a HAWK signal.



There is no apparent connection with the HAWK signal in “assuring that all current accesses are maintained to allow some level of ingress or egress and improving several accesses with improvements that also support pedestrian utilization.”

The Planning Commission further states:

“Staff have also determined that the HAWK signal is warranted based on the following:

- While not within the standard time frame for consideration there has been a pedestrian loss of life at this intersection.
- This intersection is a primary school crossing area for Riverside High School during the arrival, lunch and departure times. Use of the current RRFB creates backs along Main Street impacting the west bound off ramp queuing and can result in traffic backing up into the west bound travel lane. This is further discussed on page 7 of the Kittelson & Associates analysis that is attached.
- Pedestrian volume outside of school pedestrian usage continues to increase along Main Street.
- Crash data from 2016 through 2020 identified in the Kittelson & Associates report shows that there are a variety of different types of crashes throughout the study corridor.”

Two of the Planning Commission's determinations that a HAWK signal is warranted are addressed below.

#### **1. Queuing and RRFB**

The Technical Memorandum fails to provide substantial evidence of the existing operations of the N. Main Street/Boardman Avenue NE intersection during the arrival, lunch and departure times at the intersection nor the queuing created by the intersection. The Technical Memorandum doesn't even consider a HAWK signal. There is no traffic analysis that illustrates there is a problem at the intersection nor how a HAWK signal will operate at the intersection and whether the HAWK will mitigate the reported conditions.

#### **2. Pedestrian Volumes Increasing**

There is no evidence that “Pedestrian volume outside of school pedestrian usage continues to increase along Main Street.”

Additionally, from a technical perspective, it is evident that the N. Main Street/Boardman Avenue NE intersection does not likely meet the guidelines of the MUTCD for installation of a HAWK signal. Again, it appears that no engineering analysis has been completed in support of the proposed HAWK signal.

#### **Evaluation of City Council Findings of Fact on Appeal**

For the most part, the City Council's Findings of Fact on Appeal report adopts the findings of the Planning Commission. However, the report also addresses items of the appeal in section “III: Issues Raised on Appeal” of the report. An evaluation of three of those issues is provided below:

The City Council's Findings of Fact state:

"The City of Boardman secured the Boardman Main Street Circulation Assessment to evaluate the various needs along Main Street and the current Level of Service (LOS) identified for the Front Streets is at D which based on the Main Street Interchange Area Management Plan (IAMP) requires action by the city once a LOS of C is reached...One of the primary reasons for evaluating these intersections is the conflict between pedestrians and vehicles at the Front Street intersection as well as the Boardman Avenue intersection. Use of the currently installed RRFB causes backup and delay issues along both Main Street to the south and Boardman Avenue to the east. Replacing the RRFB with a HAWK Signal should allow for smoother interaction between vehicle travel and pedestrian crossing, particularly at the Boardman Avenue intersection..."

As previously established in this report, there is no evidence that the N. Main Street/Front Street currently operates at LOS D. In fact, the Technical Memorandum clearly illustrates that the intersection operates at an acceptable LOS C. Even so, the IAMP does not require any action at LOS D. One of the triggers for taking action per the IAMP would be if the intersection was operating at LOS E, which it is not.

The IAMP does not reference pedestrian conflicts at the N. Main Street/Front Street intersection as a trigger for modifications.

There is not substantial evidence that the RRFB causes backup and delay issues along Main Street and Boardman Avenue. The traffic analysis prepared for the intersections illustrates acceptable delays.

There is no evidence that replacing the RRFB with a HAWK signal would allow for "smoother interaction between vehicle travel and pedestrian crossing. As previously referenced, there is no traffic analysis or engineering study that includes the use of a HAWK signal.

The City Council Findings of Fact state that "The median is defined in the MS IAMP as a solution to be implemented when certain conditions have been met, which is the case." The IAMP does provide triggers for the median, but as previously addressed herein, none of the conditions have been met to trigger a median at N. Main Street/Front Street intersection.

The City Council Findings of Fact state that "As discussed previously in these Findings of Fact there is already a stacking issue on Main Street that the upgrade from the RRFB to the HAWK signal should mitigate reducing the stacking that currently occurs. This will be achieved as the HAWK signal uses more advanced logic to balance the needs of the pedestrian crossing with motor vehicle needs."

The application provides no substantial evidence of a stacking issue generated at the N. Main Street/Boardman Avenue intersection. The Technical Memorandum provides no traffic analysis that illustrates stacking issues. The application provides no evidence of any analysis involving a HAWK signal and does not provide evidence that the HAWK signal will achieve reduction of a stacking issue.

### **Approval Criteria & Conclusion**

To approve this application, the City must find that the application satisfies Section 4.4.400 of the City of Boardman Development Code:

1. "City or County facilities and improvements. Construction, reconstruction, or widening of highways, roads, bridges or other transportation facilities that are (1) not designated in the City's adopted Transportation System Plan ("TSP"), or (2) not designed and constructed as part of an approved subdivision or partition, are allowed in all Districts subject to a Conditional Use Permit and satisfaction of all of the following criteria:
  - a. The project and its design are consistent with the City's adopted TSP, or, if the city has not adopted a TSP, consistent with the State Transportation Planning Rule, OAR 660-012 ("the TPR")...
3. Proposal inconsistent with TSP/TPR. If the City determines that the proposed use or activity or its design is inconsistent with the TSP or TPR, then the applicant shall apply for and obtain a plan and/or zoning amendment prior to or in conjunction with conditional use permit approval..."

In reviewing this criteria, the Planning Commission decision states that "The city has determined that the installation of the HAWK signal is consistent with the MS IAMP and is therefore consistent with the Transportation Planning Rule...See the discussion...above and the attached Boardman Main Street Circulation Assessment [Technical Memorandum]."

As discussed previously, the Technical Memorandum doesn't contemplate a HAWK signal at all. There is no analysis that supports the installation of a HAWK signal.

Logically, if the Project is not consistent with the IAMP, then it cannot be consistent with the TSP. The Planning Commission's decision fails to conclude that the remainder of the proposed Project is consistent with the IAMP.

It is clear based on the analysis above that the Project is not consistent with the IAMP as the Planning Commission's Decision ignores the adopted triggers for implementation of the access restrictions at N. Main Street/Front Avenue. There is no evidence that any of the adopted triggers have been met.

Therefore, the application cannot be approved.

Should you have any questions, feel free to contact me at [rick@greenlightengineering.com](mailto:rick@greenlightengineering.com) or 503-317-4559.

Sincerely,

Rick Nys, P.E.  
Principal Traffic Engineer



RENEWS: 12/31/2024